

Claims

1. A fuel injection device (1), having an injection valve (9), having a line (5) that supplies highly pressurized fuel to the injection valve (9) during operation, and having a control valve (41) that controls the pressure in a control chamber (43) of the injection valve, which chamber is connected to the above-mentioned line (5), and whose moving valve element (51) is actuable by an actuator (31) via a hydraulic coupler (38) that has two pistons (39, 40) that cooperate with a coupler volume of the coupler, the seat (53) of the moving valve element (51) having an inner cross-sectional surface area f_3 and with means provided for filling the coupler volume with pressurized fuel via guidance gaps (65, 67) of the pistons (39, 40),

characterized in that the pistons (39, 40) are situated one inside the other in parallel fashion; a booster chamber (72) is situated at the ends of the pistons (39, 40) oriented away from the actuator (31); inside the outer piston (39), there is a filling chamber (71-2) that is connected to the above-mentioned line (5); one of the pistons (39), which has a piston surface area f_4 , is mechanically coupled to the actuator (31) by means of a rod (61) that has a cross-sectional surface area f_5 ; the other piston (40), which has a piston area f_2 , actuates the control valve (41) by means of a rod (63) that has a cross-sectional area f_1 that is smaller than f_2 ; the direction of the closing movement of the moving valve element (51) coincides with the direction of fuel flowing out of the control chamber (43) so that the control valve is at least partially force-balanced due to the pressure acting on the other piston (40) in the filling chamber (71-2).